ROCK ISLAND DISTRICT

MITIGATION AND MONITORING GUIDELINES

These guidelines address the Rock Island District's interpretation and application of the National Wetlands Mitigation Action Plan, which includes recommendations from the National Academy of Sciences to compensate for aquatic resource impacts authorized under the Clean Water Act Section 404 and the Rivers and Harbors Act Section 10 programs. These guidelines are intended to summarize major points regarding the compensatory mitigation that is generally required after all practicable steps have been taken to avoid and minimize impacts to aquatic sites. If additional details are required, users should refer to the *MultiAgency Compensatory Mitigation Plan Checklist*, the *Supplement: Compensatory Mitigation Plan Checklist*, and the paper titled *Incorporating the National Research Council's Mitigation Guidelines Into the Clean Water Act Section 404 Program*.

Mitigation Goals and Objectives.

Replace all the functions in the wetland or other water of the United States that will be lost if the project is constructed.

Baseline Information for Impact and Proposed Mitigation Sites.

The applicant/permittee is responsible for providing the Rock Island District baseline information on both the project site and the proposed mitigation site. The baseline information must include a description of the sites, as they currently exist. The descriptions must include location maps, topographical maps, delineations of all existing waters of the United States, information on soils, vegetation, and hydrology, ownership, and historic and existing land uses. The applicant/permittee must also describe the functions, acreage, and types of wetlands and/or other waters of the United States that will be lost at the impact site, those that will be gained at the mitigation site, and any overall watershed improvements to be gained.

Mitigation Site Selection and Justification.

Good Site selection is essential for successful mitigation. The applicant/permittee must submit a description of the site selection process, the likelihood of success, and future land use compatibility. The following points should also be considered when selecting a mitigation site.

1. The mitigation site should, generally, be in the same watershed as the area that will be impacted by the project. Mitigation proposed outside the watershed will require additional information to demonstrate that the mitigation will reasonably offset proposed project impacts and may require a higher mitigation to impact ratio.

2. Wetland mitigation on farmland that the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) has identified as "prior converted" (PC) is usually successful and is, relatively, inexpensive. Wetland Restoration on these lands may involve plugging or breaking drain tile, plugging ditches, cessation of farming activities, and planting wetland vegetation. The high success rate for these areas can be attributed to the presence of hydric soils and wetland seed banks, and the relative ease of restoring previous hydrologic conditions.

3. Low areas near a water source are more easily converted to wetlands than are high areas. The water source can be either groundwater or surface water. Wetland creation through excavation should be avoided in areas lacking data on groundwater elevations.

4. Avoid impacting existing aquatic areas and valuable upland habitat such as mature forests.

5. Locate mitigation sites as far as possible from human disturbances and as close as possible to existing natural areas.

6. Mitigation sites should be selected that will be sustainable and self-maintaining.

7. Avoid areas where the mitigation may adversely impact historic sites or threatened or endangered species.

8. Site selection assistance can be obtained from the NRCS, the U.S. Fish and wildlife Service, the U.S. Environmental Protection Agency, the Iowa Department of Natural Resources, or private consultants.

Mitigation Work Plan.

A good mitigation plan is necessary to insure the success of wetland mitigation. The plan doesn't have to be lengthy, but needs to be thorough and complete. It should consider and address all aspects of creating successful mitigation. Including the plan in the application for a Department of the Army permit may reduce the time required to process the application. Pre-application coordination with the Corps and applicable resource agencies is highly recommended.

Mitigation plans should include a location map, an aerial photograph of the mitigation site, plan view drawings showing such things as proposed wetland areas, existing wetlands and other waters of the United States, site boundaries, areas to be planted, and existing and proposed structures, before and after cross-sectional drawings of areas to be filled and/or excavated, construction methods, details of water control structures and tile outlets, performance standards, adaptive management plans, a monitoring plan, plans for site protection and maintenance, monitoring plans and financial assurances. The applicant/permittee is responsible for formulating the mitigation plan.

The mitigation plan should also consider the following:

1. Attempt to create persistent, self-maintaining areas that mimic natural aquatic sites. Seek out passive management techniques rather than active management techniques.

2. Strive for diversity in all areas to include a mix of habitats such as open water, wetlands, and adjacent upland buffers to provide a greater variety of functions (vegetation, elevations, water depths, wildlife habitat, etc.).

3. Use watershed and ecosystem approaches to determine compensatory mitigation requirements. Consider the needs of the impacted watershed, as well as the resource needs of neighboring watersheds. Mitigation plans must describe the overall watershed improvements to be gained.

4. The mitigation should be designed to create aquatic areas of at least the same quality and quantity as those that will be impacted by the project. Mitigation plans that maximize the quality and quantity of aquatic habitat will have a better chance of succeeding and will help offset the lag time between the adverse impacts and the full development of the mitigation sites.

5. Choose contractors and consultants who are familiar with the Section 404 permit program and that have previously had success at creating mitigation.

6. Complete the mitigation site construction prior to or concurrent with impacting the water of the United States at the project site. This will reduce lag time and will insure that the adverse impacts are compensated for even if construction of the project is interrupted.

7. Plan upland and transitional buffer areas at the mitigation site. Buffer areas shield the wetland from nearby activities, provide additional habitat, and filter runoff.

8. Restrict access of the mitigation area to keep out livestock, off-road vehicles, farming equipment, etc., but allow wildlife.

9. Design the mitigation site to require as few structures as possible. Structures, at some point in time, will require maintenance and may fail.

Generally, permit conditions require the repair or replacement of structures that fail.

10. Avoid designing a wetland with large fluctuations of water levels and/or high silt and scour areas. These features increase erosion and adversely impact vegetation. Storm water runoff collection should also be avoided as a primary water source in mitigation wetlands for the same reasons. Storm water runoff may contain salts, oils, and pesticides. In areas with high sedimentation rates, sedimentation basins should be constructed above mitigation areas.

11. Plan to minimize soil compaction at wetland mitigation sites by the use of low-ground-pressure, tracked vehicles and by limiting the number of trips that equipment makes over the area. Compacted areas must be deep-tilled or ripped to loosen the soil.

12. Plan to complete construction at mitigation sites during dry times of the year. This will reduce erosion and compaction and will make it easier to complete the work.

13. In areas where wetlands are being created through excavation, plan to strip and stockpile topsoils for use after construction to line created wetland areas. The topsoil lining should be from 12 to 18 inches thick. This will necessitate excavating mitigation areas 12 to 18 inches deeper than their final design grade. The topsoil should be handled as little as possible and re-spread as soon as possible.

14. Final slopes in wetlands should be gradual (10:1 to 1OO:1). Stream bank slopes should be no steeper than 3:1.

15. The edges of created wetlands should be scalloped to provide longer shorelines and greater "edge habitat". Scalloping will provide a more natural appearance.

16. Bottom elevations in created wetlands should vary to provide more diversity and to help insure wet conditions in at least some areas during dry periods.

17. During construction, care should be taken to control erosion. This may require the use of silt fences, temporary cover crops, temporary sedimentation basins, etc.

18. Contractors should be supervised during final grading and spreading of topsoil.

19. Planting of vegetation should be completed as soon after construction as possible. Sloped areas should be vegetated prior to inundation.

20. Non-native plants should be avoided and invasive species such as Reed Canarygrass and Purple Loosestrife should be controlled.

21. When planting is necessary, transplants or nursery stock from nearby areas is usually most successful since it is acclimated to local conditions.

22. Plant stock should be planted quickly and not allowed to dry out.

23. Plantings require weed control with mulching, mowing, or approved herbicides and may require watering.

24. Stream mitigation projects should replace linear feet of stream on at least a 1:1 basis.

25. Projects involving the shortening of streams should include in-stream structures at least on the upstream and downstream ends of the disturbed channel. The structures should be designed with 4:1 upstream slopes and 20:1 downstream slopes, should be constructed of stone of a sufficient size to withstand the streams strongest flows, and should be designed to be fish passable. Riffle structures as habitat may also be warranted.

Performance Standards.

Mitigation plans must contain written performance standards for assessing whether mitigation is achieving success criteria. Performance standards should be based on practicably measurable quantitative or qualitative characteristics of the mitigation plan. While it is the applicant/permittee's responsibility to propose performance standards to be used to evaluate a mitigation site, minimum performance standards are required. Performance standards for a wetland mitigation site must include acreage thresholds and positive wetland indicators according to the 1987 *Corps of Engineers Wetlands Delineation Manual*. Performance standards for a stream mitigation site must include stable stream banks, bed, and structures and successfully-vegetated banks and buffers.

Site Protection and Maintenance.

Successful long-term management can be insured with deed restrictions, conservation easements or with title transfers. Deed restrictions and conservation easements should be recorded with the Recorder of Deeds in the county where the mitigation is located. Title Transfers insure long-term protection of a site by transferring the title of the property containing the mitigation to a willing government agency or non-profit conservation entity. Evidence of legal protective measures must be provided to the Rock Island District.

After its construction, the wetland will require occasional maintenance. A maintenance plan and schedule is required. Maintenance is the applicant/permittee's responsibility.

Monitoring Plan.

Mitigation sites must be inspected annually for at least five years. The applicant/permittee must submit a monitoring plan that includes the primary party responsible for monitoring, an on-site monitoring schedule, a description of what will be monitored, monitoring methods and tools, and the format for reporting monitoring data and assessing mitigation status. A person trained in the 1987 Corps of Engineers Wetlands Delineation Manual must perform the monitoring. The results of the annual monitoring must be included in annual monitoring reports. At a minimum, the reports must describe whether or not the mitigation performance standards have been met. Such things as planting success rates, on-site photos, estimation of vegetative cover, demonstration of hydrology, and planned or completed remedial work may also be required in the monitoring reports. Compensatory mitigation projects will also be evaluated and monitored by the Corps

Adaptive Management Plan.

Corrective actions may be required if a mitigation site is not fully successful. An Adaptive Management Plan must be included in the mitigation plan. The applicant/permittee is responsible for all required corrective actions, even if the mitigation site was transferred to a third party. The adaptive management plan must include the party responsible for adaptive management, a discussion of how potential challenges (e.g., flooding, drought, invasive species, seriously degraded site, extensively developed landscape, etc.) will be handled, a discussion of potential remedial measures in the event mitigation does not meet performance standards in a timely manner, and a description of procedures to allow for modifications of performance standards if mitigation projects are meeting mitigation goals, but in unanticipated ways.

Financial Assurances.

Financial assurances may be required for projects with large mitigation sites or when the likelihood of success at a mitigation site appears to be low. Financial assurances will help insure that the mitigation is successfully completed. The financial assurances can involve the use of performance bonds, letters of credit with a forfeiture clause, irrevocable trusts, escrow accounts, and casualty insurance. The financial assurances must be substantial enough to cover all costs of the mitigation, monitoring, site protection, and maintenance. When financial assurances are required, the applicant must identify the party(ies)

responsible to establish and manage the financial assurance, the specific type of financial instrument, the method used to estimate assurance amount, the date of establishment, the release and forfeiture conditions, and a schedule by which financial assurance will be reviewed and adjusted to reflect current economic factors.